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PATENT ABSTRACTS OF JAPAN

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(71)Applicant : TYCO ELECTRONICS AMP KK

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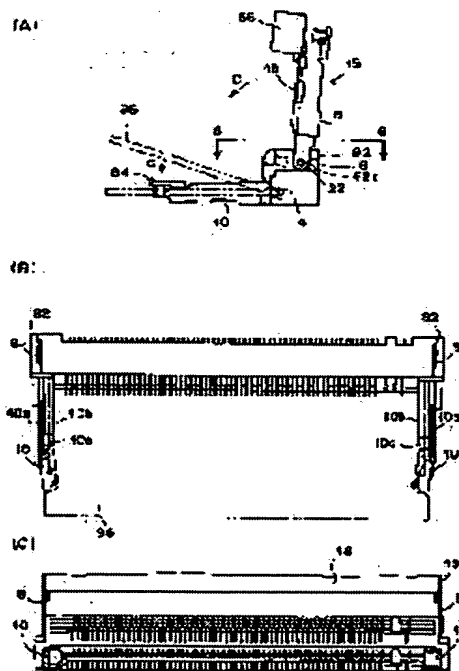
(72)Inventor : HASHIMOTO SHINICHI

(54) CARD EDGE CONNECTOR ASSEMBLY

(57)Abstract:

PROBLEM TO BE SOLVED: To easily fit a sub-board (card) on the lower stage in a two-stage card edge connector assembly.

SOLUTION: A subassembly 19 is fitted to the spindles 22 protruded at both ends of an oblong housing 6 via latch members 8. Projections (support sections) 82 are protruded outward at both ends of the rear section of the housing 6 to keep the subassembly 19 at an opened state. The sub-board (first sub-board) 96 on the lower stage is diagonally inserted into a receiving recess 4 on the lower stage as shown by Fig. 6 (A) and is depressed downward and fitted to latch members 10 as shown by an arrow C. Since the latch members 8 are rotated and retreated to the outside of the inserting path of the sub-board 96 before the sub-board 96 is inserted, the latch members 8 do not hinder the insertion of the sub-board 96.



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Summary

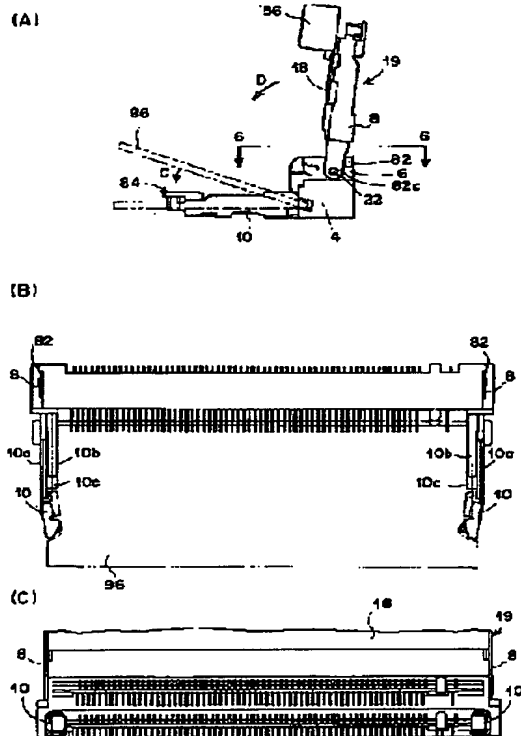
(57) [Abstract]

[Technical problem] It enables it to equip with the child substrate (card) of the lower
berth easily in the edge connector assembly of a two-step pile.

[Means for Solution] the pivot 22 which protruded on the ends of the housing 6 with
the oblong subassembly 19 -- a latch -- it is attached through the member 8
Heights (supporter) 82 protrude on the method of outside in the posterior part ends
of housing 6, and it maintains in the state where the subassembly 19 was opened.
the child substrate 96 by the side of the lower berth (1st child substrate) is
depressed to the down side, as are shown in drawing 6 (A), and it is aslant inserted
in the acceptance crevice 4 of the lower berth and Arrow C shows -- having -- a

latch — it is attached in a member 10 a latch — since the member 8 was rotated before insertion of the child substrate 96 and it has shunted out of the insertion path of the child substrate 96 — a latch — there is no member 8 in the hindrance of insertion of the child substrate 96 with a bird clapper

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CLAIMS

[Claim(s)]

[Claim 1] It is made to engage with the aforementioned latch member which is equipped with the following, is rotated while inserting the 1st child substrate in the 1st aforementioned child substrate acceptance crevice aslant to the aforementioned housing, and corresponds. In the edge connector assembly constituted so that the 2nd aforementioned child substrate acceptance crevice might be made to equip with the 2nd child substrate similarly The edge connector assembly characterized by attaching the aforementioned latch member for the child substrates of the above 2nd in the aforementioned housing possible [rotation] so that it may evacuate out of the insertion path of the child substrate of the above 1st. Insulating housing which has the parallel child substrate acceptance crevice of two trains prolonged in a longitudinal direction, and is attached in a parent substrate two pairs of latches arranged near the both ends of the longitudinal direction of this housing corresponding to the aforementioned child substrate acceptance crevice -- a member

[Claim 2] The edge connector assembly according to claim 1 to which the aforementioned housing is characterized by having the supporter maintained in the state where this latch member was evacuated to the position which the aforementioned latch member for the child substrates of the above 2nd evacuated.

[Claim 3] It is made to engage with the aforementioned latch member which is equipped with the following, is rotated while inserting the 1st child substrate in the 1st aforementioned child substrate acceptance crevice aslant to the aforementioned housing, and corresponds. In the edge connector assembly constituted so that the 2nd aforementioned child substrate acceptance crevice might be made to equip with the 2nd child substrate similarly One pair of aforementioned latch members for the child substrates of the above 2nd are mutually connected by the connection member, and are made into a subassembly. The edge connector assembly characterized by attaching this subassembly by the aforementioned latch member for the child substrates of the above 2nd possible [evacuation] out of the insertion path of the child substrate of the above 1st at the aforementioned housing. Insulating housing which has the parallel child substrate acceptance crevice of two trains prolonged in a longitudinal direction, and is attached in a parent substrate two pairs of latches arranged near the both ends of the longitudinal direction of this housing corresponding to the aforementioned child substrate acceptance crevice -- a member

[Claim 4] the aforementioned connection member -- the aforementioned latch for the child substrates of the above 2nd -- the edge connector assembly according to claim 3 characterized by having a fault stress prevention means to prevent the fault stress of a member

[Claim 5] The edge connector assembly according to claim 4 characterized by being opening to which the aforementioned fault stress prevention means receives the

protruding piece prepared in the aforementioned latch member of the aforementioned subassembly.

[Claim 6] The claim 3 to which the aforementioned housing is characterized by having the supporter maintained in the state where this subassembly was evacuated to the position which the aforementioned subassembly evacuated, or the edge connector assembly of five given in any 1 term.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the edge connector assembly which has a child substrate acceptance crevice used as especially two trains about the edge connector assembly equipped with a child substrate.

[0002]

[Description of the Prior Art] As an edge connector assembly of the type which receives two child substrates, the electrical connector for module substrates of a type is known every [which was indicated by the patent No. 3022230 official report] two-step pile level width. This electrical connector has housing which carried out the position gap of the card acceptance section so that the module substrate (child substrate) of an upper case might be retreated from the module substrate of the lower berth and might be received. The position gap of the latch member which stops an up-and-down module substrate, respectively is carried out by this, and it is made to avoid the latch member which stops the module substrate of an upper case for the module substrate for the lower berths in case evulsion is carried out, insertion and.

[0003]

[Problem(s) to be Solved by the Invention] although the position gap of the latch

member for upper cases is carried out when inserting the module substrate for the lower berths inserted first in the above-mentioned Prior art — the latch member for upper cases, and the latch for the lower berths — you have to insert within the limits of [narrow] between members Although a taper is formed in some housing and it is made not to interfere in it with a child substrate in order to enlarge the insertion angle of a module substrate, the module substrate of the lower berth is unchanging to it being necessary to warn to avoid interfering with the latch member for upper cases, and the workability of insertion of the module substrate (card) of the lower berth and evulsion work is bad.

[0004] this invention is made in view of the above point, and it aims at offering the edge connector assembly which can perform easily wearing and evulsion of a child substrate with which it equips previously between two child substrates.

[0005]

[Means for Solving the Problem] Insulating housing which the edge connector assembly of this invention has the parallel child substrate acceptance crevice of two trains prolonged in a longitudinal direction, and is attached in a parent substrate, It has two pairs of latch members arranged near the both ends of the longitudinal direction of this housing corresponding to a child substrate acceptance crevice. It is made to engage with the latch member which is rotated while inserting the 1st child substrate in the 1st child substrate acceptance crevice aslant to housing, and corresponds. In the edge connector assembly constituted so that the 2nd child substrate acceptance crevice might be made to equip with the 2nd child substrate similarly The latch member for the 2nd child substrate is characterized by being attached in housing possible [rotation] so that it may evacuate out of the insertion path of the 1st child substrate.

[0006] Here, a series of operation until insert a child substrate in housing aslant, it makes it rotate it and it makes it engage with a latch member is covered, and "an insertion path outside" says the portion except the space occupied in case a child substrate moves.

[0007] The turn which inserts "the 1st child substrate" and "the 2nd child substrate" in housing of an assembly says the child substrate which becomes the 1st and the 2nd, respectively.

[0008] Housing can have the supporter maintained in the state where this latch member was evacuated to the position which the latch member for the 2nd child substrate evacuated.

[0009] Moreover, the edge connector assembly of this invention Insulating housing which has the parallel child substrate acceptance crevice of two trains prolonged in a longitudinal direction, and is attached in a parent substrate, It has two pairs of latch members arranged near the both ends of the longitudinal direction of this housing corresponding to a child substrate acceptance crevice. It is made to engage with the latch member which is rotated while inserting the 1st child substrate in the 1st child substrate acceptance crevice aslant to housing, and corresponds. In the

edge connector assembly constituted so that the 2nd child substrate acceptance crevice might be made to equip with the 2nd child substrate similarly One pair of latch members for the 2nd child substrate are mutually connected by the connection member, it considers as a subassembly, and this subassembly is characterized by being attached by the latch member for the 2nd child substrate possible

[evacuation] out of the insertion path of the 1st child substrate at housing.

[0010] a connection member -- the latch for the 2nd child substrate -- it can have a fault stress prevention means to prevent the fault stress of a member

Furthermore, let a fault stress prevention means be opening which receives the protruding piece prepared in the latch member of a subassembly.

[0011] Housing can have the supporter maintained in the state where the subassembly was evacuated to the position which the subassembly evacuated.

[0012]

[Effect of the Invention] Since the latch member for the 2nd child substrate is attached in housing possible [rotation] so that it may evacuate out of the insertion path of the 1st child substrate, the edge connector assembly of this invention Since the latch member for the 2nd child substrate does not have a bird clapper obstructive and can also take insertion of a child substrate, and the large angle at the time of evulsion, when carrying out insertion rotation of the first child substrate and equipping an assembly, or when carrying out evulsion, It can equip and evulsion work very easily like the case where a single edge connector is received.

[0013] Moreover, when housing has the supporter maintained in the state where the latch member was evacuated to the position which the latch member for the 2nd child substrate evacuated, it is not necessary to press down the latch member for the 2nd child substrate by hand, and wearing of the 1st child substrate and **** can be performed still more easily.

[0014] Moreover, since, as for the edge connector assembly of this invention, a 1 pair for child substrates of ** 2nd of latch member is mutually connected by the connection member, it considers as a subassembly and it is attached in housing by the latch member for [in this secondary assembly / possible] the child substrates of ** a 2nd to the outside of the insertion path of the child substrate of ** a 1st, it is not necessary to rotate a 1 pair of latch member individually, and rotation operation becomes still easier.

[0015] a connection member -- the latch for the 2nd child substrate -- when it has a fault stress prevention means to prevent the fault stress of a member, it can prevent that a latch member deforms too much and spoils a function Furthermore, when it considers as opening which receives the protruding piece in which the fault stress prevention means was prepared by the latch member of a subassembly, formation of a fault stress prevention means is easy.

[0016] When housing has the supporter maintained in the state where the subassembly was evacuated to the position which the subassembly evacuated, it is not necessary to press down by hand in the state where the subassembly was

evacuated, and to hold in it, and wearing of the 1st child substrate and ***** can be performed still more easily.

[0017]

[Embodiments of the Invention] Hereafter, the gestalt of desirable operation of the edge connector assembly (only henceforth an assembly) of this invention is explained in detail with reference to a drawing. Drawing 1 shows the assembly of this invention at the time of constituting as a type every two-step pile level width, in drawing 1 (A), the plan of an assembly and drawing 1 (B) show front view, and drawing 1 (C) shows a side elevation, respectively. Hereafter, it explains with reference to drawing 1. An assembly 1 has the insulating housing 6 which has the child substrate acceptance crevice (2nd child substrate acceptance crevice) 2 of an upper case, and the child substrate acceptance crevice (1st child substrate acceptance crevice) 4 of the lower berth, and is attached in the parent substrate 20 (drawing 1 (B)). Hereafter, these child substrate acceptance crevices 2 and 4 are only called acceptance crevices 2 and 4.

[0018] The parallel acceptance crevices 2 and 4 (drawing 1 (B)) of two trains are prolonged along with the longitudinal direction of housing 6, and two or more contacts 12 (14 15 (drawing 2)) attend the acceptance crevices 2 and 4, and are attached in the upper portion in the posterior part (A), i.e., drawing 1, of housing 6. As shown in drawing 1 (A), the child substrates (card) 96 and 98 are inserted in these acceptance crevices 2 and 4 from the anterior part of an assembly 1. (The 1st child substrate and the child substrate 98 of an upper case are called 2nd child substrate for the child substrate 96 of the lower berth.) The parent substrate 20 is shown in both drawing 1 (B).

[0019] the both ends of housing 6 -- the acceptance crevices 2 and 4 -- corresponding -- two pairs of latches -- the child substrates 98 and 96 which members 8, 8, 10, and 10 are attached, respectively, and were inserted -- these latches -- it stops by members 8 and 10, respectively each latch -- the pair of members 8 and 10 serves as a bilateral symmetry by each set in addition, the latch of an upper case -- it is important in this invention that members 8 and 8 are attached possible [the rotation to housing 6 and the pivot 22 to which it protruded on one] as shown in drawing 1 (C) In addition, this pivot 22 may be housing 6 and the member of another object.

[0020] housing 6 -- a latch -- the plates (connection member) 16 and 18 of an abbreviation rectangle are attached for the flat-surface configuration prolonged to the ends of housing 6 corresponding to members 8, 8, 10, and 10 Plates 16 and 18 are respectively pierced and formed from the metal plate of one sheet. As shown in drawing 1 (A), the plate 16 of an upper case has the flat principal plane 24, and the rear face 26 prolonged in the same direction as a principal plane 24 is formed through the step 21 prolonged at the posterior part at the longitudinal direction of housing 6. In both ends on the back, the attachment section 28 of the shape of a cross section of L characters which turns to the rear face of housing 6 has

extended.

[0021] The notches 32 and 32 prolonged in the longitudinal direction of a plate 16 near the both sides of the front end 30 of a plate 16 are formed. pass the step 34 prolonged toward the front end 30 from each of this notch 32 — the latch for upper cases — the maintenance board 36 of the abbreviation rectangle which engages with the outside of a member 8 is formed this maintenance board 36 — the latch of an upper case — according to the appearance configuration of a member 8, it is being completed inside by the front end 30 side the child substrate (2nd child substrate) 98 inserts this maintenance board 36 — having — a latch — the latch after engaging with a member 8 — it is for a member 8 opening outside and making it engagement to a child substrate not separate In addition, a principal plane 24 is relatively located up by steps 21 and 34 for securing the space for IC (not shown) carried in the child substrate 98. About a plate 18, it mentions later.

[0022] Next, the cross-section configuration of an assembly 1 is explained with reference to drawing 2 . The cross section with which drawing 2 (A) meets the 2A-2A line of drawing 1 (A), and drawing 2 (B) are cross sections which meet the 2B-2B line of drawing 1 (A). contact insertion of the upper case and the lower berth in which housing 6 attaches contact 12 from the rear of housing 6 as shown in drawing 2 (A) — insertion of the upper case and the lower berth which attach contacts 14 and 15 from the front as it is indicated in drawing 2 (B) as holes (the following — only — insertion — it is called a hole) 38 and 40 — it has holes 42 and 44 in the longitudinal direction of housing 6 in the position which carried out the position gap each insertion — holes 38 and 40 — the acceptance crevices 2 and 4 — open for free passage — insertion — holes 42 and 44 adjoin the acceptance crevices 2 and 4 moreover, insertion — the contact segment insertion slots 39 and 41 which adjoin holes 38 and 40 and are open for free passage to the acceptance crevices 2 and 4 are formed

[0023] Long and slender main part 12a prolonged in the upper and lower sides arranged in the contact acceptance slot 23 where contact 12 was formed in housing 6, the insertion from this main part 12a — with the attachment tabs 12b and 12b pressed fit in holes 38 and 40 It has TAIN 12d soldered to the curved contact segments 12c and 12c prolonged in the acceptance crevice 2 and 4 through the contact segment insertion slots 39 and 41, respectively from the portion of these attachment tabs 12b and 12b, and the electric conduction pad which the parent substrate 20 does not illustrate. The point of contact segments 12c and 12c has the acceptance crevice 2 and the contacts 12f and 12f which carry out the electric conduction pad (not shown) and electrical installation of the child substrate inserted into four.

[0024] You should note that the wall surfaces 2a and 4a of the bottom which forms the acceptance crevices 2 and 4 incline up by the acute angle, and can insert a child substrate in the acceptance crevices 2 and 4 at this angle. In addition, the above-mentioned step 21 and the above-mentioned attachment section 28 of a plate 16 of

an upper case are clearly shown in this drawing 2 (A). the latch of the lower berth -- a member 10 has the piece of pressing fit (not shown) which has a varve (prickle) in a side edge, and is attached in housing 6 by inserting in the slot where housing 6 does not illustrate this piece of pressing fit therefore, a latch -- a member 10 is fixed so that it may not rotate up and down to housing 6

[0025] Next, contacts 14 and 15 are explained. contacts 14 and 15 -- from main parts 14a and 15a and the main parts 14a and 15a of those -- level -- being prolonged -- insertion -- it has a hole 42, the attachment tabs 14b and 15b pressed fit in 44, respectively, and the contact segments 14c and 15c which extend in the acceptance crevice 2 and 4 while curving from main parts 14a and 15a The nose of cam of contact segments 14c and 15c serves as the contacts 14f and 15f in contact with the electrode which the child substrates 96 and 98 do not illustrate. The piece 17 of connection of the shape of a KO character which alignment was carried out to the posterior part of housing 6 with contacts 14 and 15, and the longwise slot 25 was formed, and pierced and formed the metal plate in this slot 25 is arranged. The contact feet 17a and 17a are formed in the ends of the piece 17 of connection, and attachment tab 17b is formed among these contact feet 17a and 17a. Attachment tab 17b is pressed fit and fixed to the slot 46 of the corresponding housing 6. At this time, the contact feet 17a and 17a contact the attachment tabs 14b and 15b of contacts 14 and 15, and contacts 14 and 15 are connected electrically.

[0026] Next, the plate 18 of the lower berth is explained with reference to drawing 3. In drawing 3 (A), the plan of a plate 18 and drawing 3 (B) show front view, and drawing 3 (C) shows a side elevation, respectively. The plate 18 is carrying out the abbreviation rectangle configuration like the plate 16, as best shown in drawing 3 (A). The pieces 50 and 50 of attachment of the rectangle bent by the bottom to the principal plane 48 of a plate 18 are formed in the posterior part ends of a plate 18. Two mounting holes 52 and 52 arranged in parallel with a principal plane 48 are drilled in each piece 50 of attachment. these mounting holes 52 and 52 -- the latch of the bottom, i.e., an upper case, -- although a member 8 is attached, about the detail of attachment, it mentions later

[0027] The maintenance boards 56 and 56 of the rectangle bent by the bottom are formed in the anterior part of the ends edges 54 and 54 of a plate 18. this maintenance board 56 -- a latch -- it is formed so that a member 8 may be converged inside like the maintenance board 36 of the wrap plate 8 The soffit 58 of the maintenance board 56 is slightly extended to the method of outside. The openings (fault stress prevention means) 60 and 60 of an abbreviation rectangle are formed in the principal plane 48 near the back end of each maintenance board 56. Radial-border 60a of each opening 60 is extended back, and slot 60b is formed in the posterior part of opening 60. this opening 60 -- an upper latch -- although it collaborates with a member 8, for details, it mentions later

[0028] next, drawing 4 -- referring to -- the latch of an upper case -- a member 8 is explained drawing 4 (A) -- a latch -- in the side elevation of a member 8, and

drawing 4 (B), a plan and drawing 4 (C) show the near side elevation of another side, and drawing 4 (D) shows front view, respectively a latch — a member 8 pierces the metal plate of one sheet, and bends and forms it, and the child substrate attaching part 64 is formed in left-hand side in the side, long and slender monotonous section 62, i.e., arm, and the front end side (A) of this monotonous section 62, i.e., drawing 4 The hole 65 pivoted by the pivot 22 (drawing 1 (C)) of housing 6 is drilled in the back end section of the monotonous section 62. The child substrate attaching part 64 has the hook section 68 of the ancyloid which made the piece 66 of child substrate maintenance bent and formed in the upper limb of the point of the monotonous section 62, and the nose of cam of the monotonous section 62 bend and project inside.

[0029] The piece 66 of child substrate maintenance has taper 66a which inclined in the inside (2nd child substrate) 98, i.e., child substrate to hold, side, and halt side 66b which presses down the child substrate 98. This taper 66a sags the method of outside, and enables acceptance of the child substrate 98 of the monotonous section 62 while it guides the child substrate 98, when the child substrate 98 is inserted. If the received child substrate 98 reaches halt side 66b, it will be pressed down so that the monotonous section 62 may return in a from cartridge and the child substrate 98 may not return upwards by halt side 66b. Moreover, the hook section 68 prevents that engage with circular notch 98a (drawing 7 (A)) of the child substrate 98, and the child substrate 98 falls out and comes out to the front, i.e., the left of drawing 4 (B).

[0030] it is best shown in drawing 4 (B) and (C) — as — the hole of upper-limb 62a of the monotonous section 62 — the fixed piece 70 which was prolonged up and bent in parallel with the monotonous section 62 is formed in 65 approach The nose of cam where this fixed piece 70 was bent is formed as a piece 72 of an elastic contact which is further bent right-angled with the monotonous section 62, and is prolonged in the direction of the child substrate attaching part 64. The point is bent up, the grounding electrode (not shown) and this point of the child substrate 98 with which it was equipped contact, and this piece 72 of an elastic contact carries out ground connection of the child substrate 98. The gap G which receives the piece 50 of attachment of the above-mentioned plate 18 in between is formed at the fixed piece 70 and the monotonous section 62 (drawing 4 (B)). Moreover, the salient 74 is formed in the position corresponding to the mounting hole 52 of a plate 18 towards the monotonous section 62 side at the fixed piece 70.

[0031] In margo-inferior 62b of the monotonous section 62, the piece 76 of fault stress prevention is formed in the position corresponding to the point of the piece 72 of an elastic contact, and this prevents too much deformation of the piece 72 of an elastic contact. Moreover, the piece 78 of regulation which has the monotonous section 62, the extension 77 which extended right-angled, and the L character-like section 80 prolonged further caudad from this extension 77 is formed in the opposite side of the child substrate attaching part 64 of margo-inferior 62b of the

monotonous section 62. The L character-like section 80 has protruding piece 80a prolonged back in parallel with a plate-like part 62.

[0032] next, drawing 5 -- referring to -- the latch of this upper case -- the subassembly which attached the member 8 in the plate 18 of the lower berth is explained In drawing 5 (A), the plan of the subassembly 19 and drawing 5 (B) show front view, and drawing 5 (C) shows a side elevation, respectively. each latch -- a member 8 attaches the fixed piece 70 in the piece 50 of attachment of a plate 18 so that the piece 72 of an elastic contact may become inside this time -- a latch -- while two salients 74 (drawing 4 (C)) of the fixed piece 70 of a member 8 are engaged and fixed to two mounting holes 52 (drawing 3 (C)) of a plate 18 -- a latch -- the L character-like section 80 of a member 8 invades into the opening 60 of a plate 18 In case it invades, protruding piece 80a is arranged for protruding piece 80a of the L character-like section 80 through slot 60b of opening 60 at the principal plane 48 bottom of a plate 18.

[0033] When external force has not joined the child substrate attaching part 64, protruding piece 80a is located in the portion of the opening [b / slot 60] 60 shifted. That is, it becomes the position shown in drawing 5 (A). therefore, a latch -- since this protruding piece 80a contacts the principal plane 48 of a plate 18 from a lower part and regulates movement beyond it, even when the force A to the upper part (drawing 5 (B)) joins a member 8 -- a latch -- it is prevented that a member 8 separates from a plate 18 moreover, a latch -- a member 8 becomes possible [moving, in case the monotonous section 62 receives the child substrate 98 within limits which the L character-like section 80 can move in the direction (drawing 5 (A)) shown by Arrow B within opening 60] thus, a latch -- a member 8 and a plate 18 are assembled by one and constituted as a plate secondary assembly 19 thus, opening 60 and protruding piece 80a -- collaborating -- a latch -- the fault stress of a member 8 is prevented

[0034] Next, with reference to drawing 6 and drawing 7 , the means of attachment of the child substrates 96 and 98 are explained. In the side elevation of an assembly 1 showing the state where drawing 6 (A) rotated around the pivot 22 of housing 6, and opened the subassembly 19, and drawing 6 (B), the plan and drawing 6 (C) which were cut along with 6-6 line of drawing 6 (A) show front view, respectively. In addition, the state where the plate 16 of an upper case was removed from the assembly 1 is shown by drawing 6 . Drawing 7 shows the state where the subassembly 19 was closed, after attaching the child substrate 96 by the side of the lower berth (1st child substrate), in drawing 7 (A), a plan and drawing 7 (B) are shown in front view, and drawing 7 (C) shows a side elevation in the upper plate 16.

[0035] the pivot 22 to which the subassembly 19 protruded on the ends of the oblong housing 6 as shown in drawing 6 -- a latch -- being attached through a member 8 is shown clearly Heights (supporter) 82 protrude on the method of outside in the posterior part ends of housing 6. the time of opening these heights 82, in order that the subassembly 19 may equip with the child substrate 96 -- a latch -- it

maintains, the state, i.e., state where it evacuated, which upper-limb 62c near the posterior part of the monotonous section 62 of a member 8 contacted, and opened the subassembly 19 in this state, the child substrate 96 by the side of the lower berth is depressed to the down side, as are shown in drawing 6 (A), and it is aslant inserted in the acceptance crevice 4 of the lower berth and Arrow C shows -- having (rotating) -- a ** latch -- it is attached in a member 10 thus, the child substrate 96 -- a latch -- since the member 8 rotated beforehand and has evacuated out of the insertion path of the child substrate 86 before insertion of the child substrate 96 -- a latch -- there is no member 8 in the hindrance of insertion of the child substrate 96 with a bird clapper

[0036] the child substrate 96 -- a latch -- an imaginary line shows the state where it was attached in the member 10 to drawing 6 (B) However, the child substrate 96 is not shown in drawing 6 (C). After attaching the child substrate 96, the subassembly 19 rotates on the substrate 96 of the lower berth, as Arrow D shows to drawing 6 (A), and will be in the state which shows in drawing 7 . this time -- the maintenance board 56 of a plate 18 -- a latch -- the outside of the child substrate attaching part 84 of a member 10 -- being located -- a latch -- it has prevented that the child substrate attaching part 84 of a member 10 bends outside, and the child substrate 96 separates Since the soffit 58 has extended the maintenance board 56 slightly, when engaging with the child substrate attaching part 84, it becomes the guide which carries out alignment mutually.

[0037] in addition, the latch of the lower berth -- a member 10 -- the latch of an upper case -- the same configuration as a member 8 is carried out a latch -- monotonous section 10a of a member 10 is turned up by the hind upper limb -- having -- a latch -- the latch which piece of elastic contact 10b by which ground connection is carried out to the child substrate 96 as well as a member 8 is formed, and prevents the fault stress of this piece of elastic contact 10b from the margo inferior of monotonous section 10a -- the same piece of fault stress prevention 10c as a member 8 protrudes inside

[0038] it is shown in drawing 7 (A) -- as -- a lower latch -- a member 10 is covered by the subassembly 19 and is not visible from the upper part drawing 7 (B) -- a latch -- it is shown that movement to the method of outside is regulated for the member 10 with the maintenance board 56 as the upper child substrate 98 shows drawing 7 (C), it is aslant inserted in the acceptance crevice 2 of an upper case, and it rotates in the direction shown by Arrow E -- having -- a latch -- it is attached in a member 8 The child substrate 98 in this state where it was attached is shown in drawing 7 (A). After the child substrate 98 is attached, the upper plate 16 is attached in housing 6, as best shown in drawing 1 (B), the maintenance board 36 of a plate 16 is arranged on the outside of the child substrate attaching part 64, and it is regulated that the child substrate attaching part 64 bends in the method of outside. Thereby, an assembly 1 is completed.

[0039] Although this invention was explained in detail with reference to the gestalt

of desirable operation above, an operation gestalt to the last and is not limited to these. For example, although an assembly 1 is the thing of the form laid horizontally on the parent substrate 20, you may be the thing of the form attached perpendicularly. In this case, although the size of the height direction becomes large, the component-side product on a parent substrate has the advantage of becoming small.

[Translation done.]

*** NOTICES ***

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3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The assembly of this invention is shown, in drawing 1 (A), the plan of an assembly and drawing 1 (B) show front view, and drawing 1 (C) shows a side elevation, respectively.

[Drawing 2] The cross-section configuration of the assembly of drawing 1 is shown, and the cross section with which drawing 2 (A) meets the 2A-2A line of drawing 1 (A), and 2 (B) show the cross section which meets the 2B-2B line of drawing 1 (A), respectively.

[Drawing 3] The plate of the lower berth is shown, in drawing 3 (A), the plan of a plate and drawing 3 (B) show front view, and drawing 3 (C) shows a side elevation, respectively.

[Drawing 4] the latch member of an upper case -- being shown -- drawing 4 (A) -- a latch -- in the side elevation of a member, and drawing 4 (B), a plan and drawing 4 (C) show the near side elevation of another side, and drawing 4 (D) shows front view, respectively

[Drawing 5] The subassembly which attached the latch member of an upper case in the plate is shown, in drawing 5 (A), the plan of a subassembly and drawing 5 (B) show front view, and drawing 5 (C) shows a side elevation, respectively.

[Drawing 6] The means of attachment of the child substrate of the lower berth are shown, and, in the side elevation of an assembly showing the state where drawing 6

(A) rotated around the pivot of housing, and opened the subassembly, and drawing 6 (B), the plan and drawing 6 (C) which were cut along with 6-6 line of drawing 6 (A) show front view, respectively.

[Drawing 7] The state where the subassembly was closed is shown after attaching the child substrate by the side of the lower berth, in drawing 7 (A), a plan and drawing 7 (B) are shown in front view, and drawing 7 (C) shows a side elevation in an upper plate.

[Description of Notations]

1 Edge Connector Assembly
2 1st Child Substrate Acceptance Crevice
4 2nd Child Substrate Acceptance Crevice
6 Housing
8 and 10 a latch — member
16 Plate (Connection Member)
19 SubAssembly
20 Parent Substrate
22 Pivot
60 Opening (Fault Stress Prevention Means)
65 Hole
80a Protruding piece
82 Heights (Supporter)
96 1st Child Substrate
98 2nd Child Substrate

[Translation done.]

*** NOTICES ***

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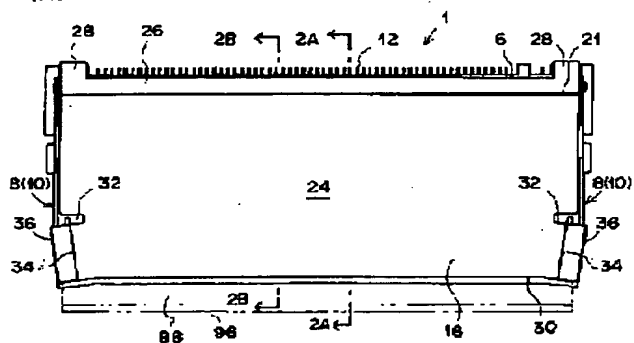
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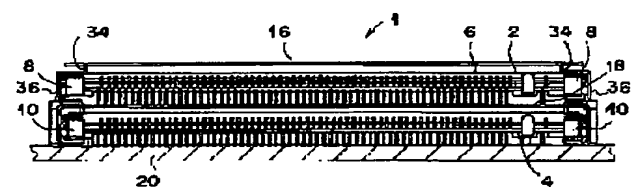
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DRAWINGS

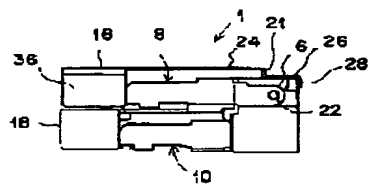
[Drawing 1]
(A)



(B)

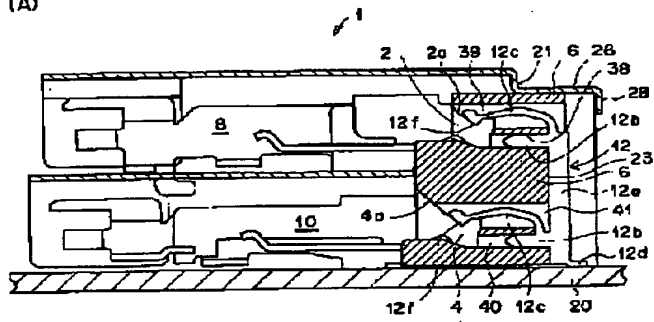


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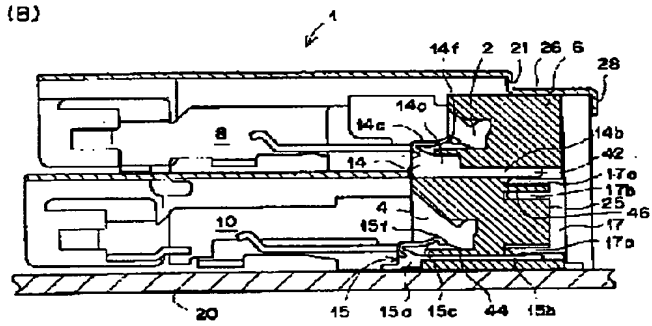


[Drawing 2]

(A)

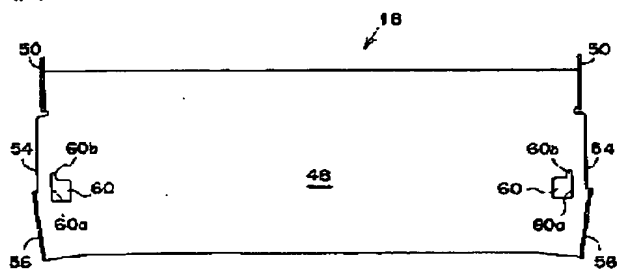


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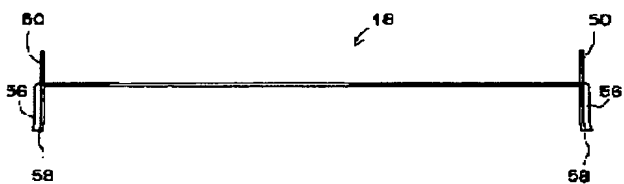


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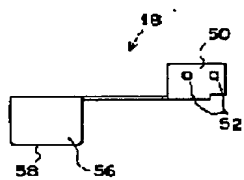
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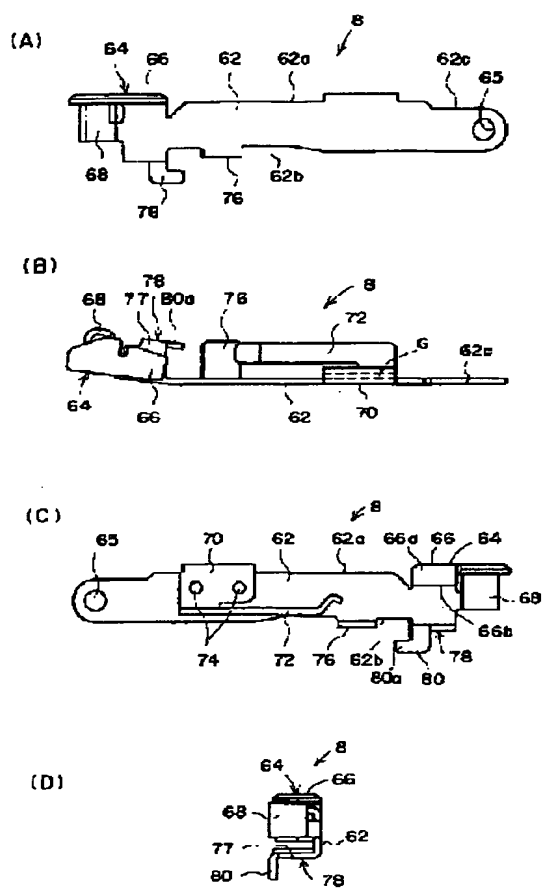
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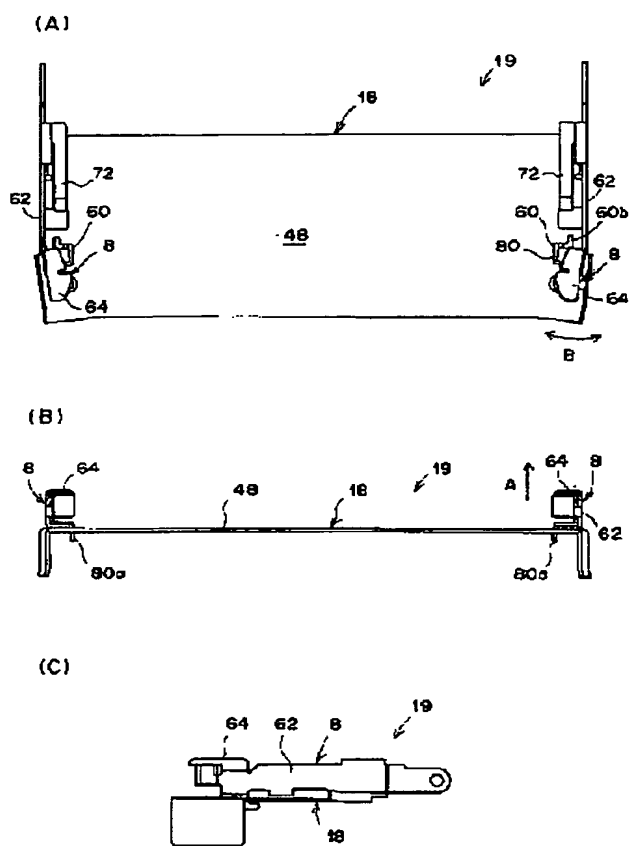
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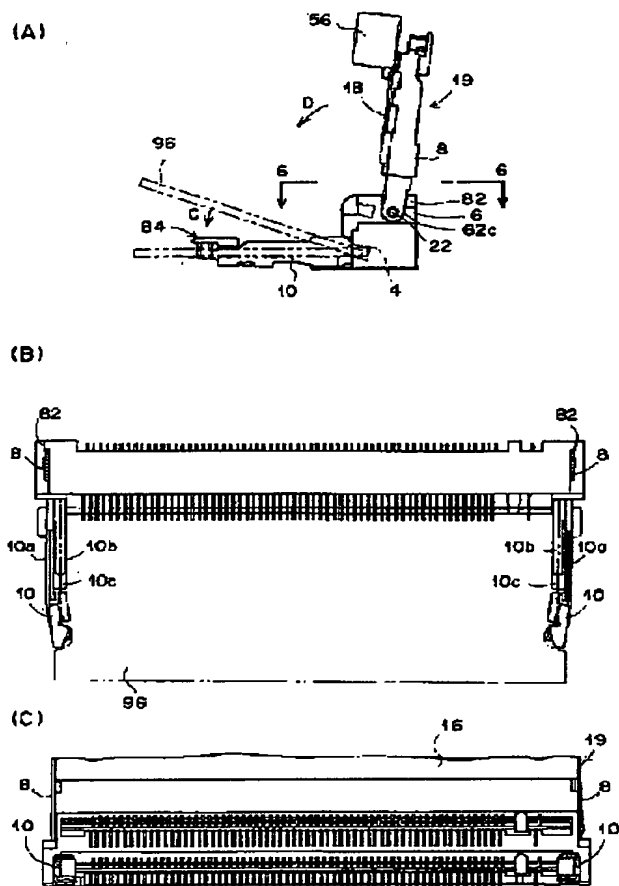
[Drawing 4]



[Drawing 5]

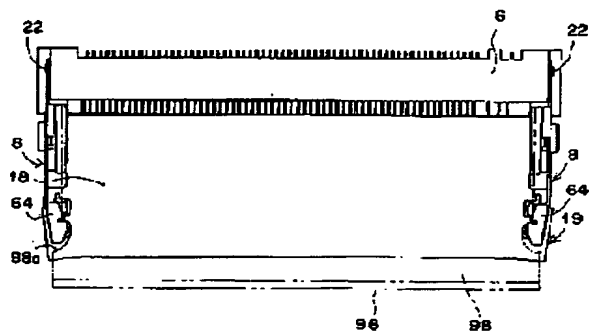


[Drawing 6]

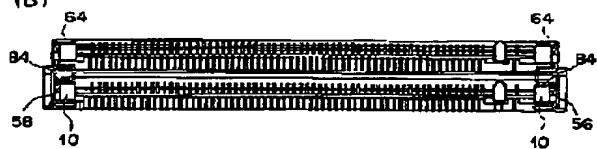


[Drawing 7]

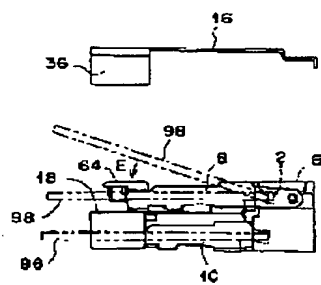
(A)



(B)



(C)



[Translation done.]

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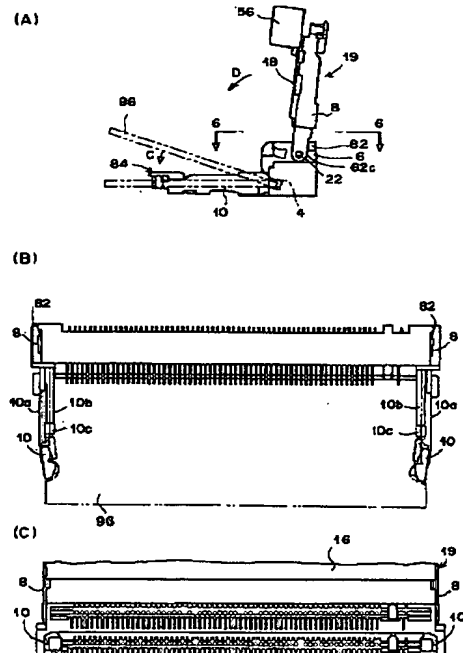
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(54) 【発明の名称】 カードエッジコネクタ組立体

(57) 【要約】

【課題】 2段重ねのカードエッジコネクタ組立体において、下段の子基板（カード）を容易に装着できるようにする。

【解決手段】 副組立体19は、横長のハウジング6の両端に突設された支軸22にラッチ部材8を介して取り付けられている。ハウジング6の後部両端には凸部（支持部）82が外方に突設され、副組立体19を開いた状態に維持する。下段側の子基板（第1の子基板）96は図6（A）に示すように下段の受容凹部4に斜めに挿入され矢印Cで示すように下側に押し下げられてラッチ部材10に取り付けられる。ラッチ部材8は子基板96の挿入前に回転されて子基板96の挿入経路外に待避しているためラッチ部材8が子基板96の挿入の妨げになることはない。



【特許請求の範囲】

【請求項1】 長手方向に延びる2列の平行な子基板受容凹部を有し親基板に取り付けられる絶縁性のハウジングと、該ハウジングの長手方向の両端部近傍に前記子基板受容凹部に対応して配置される2対のラッチ部材とを備え、第1の子基板を第1の前記子基板受容凹部に前記ハウジングに対し斜めに挿入すると共に回転させて対応する前記ラッチ部材と係合させ、第2の子基板を同様に第2の前記子基板受容凹部に装着させるよう構成されたカードエッジコネクタ組立体において、前記第2の子基板用の前記ラッチ部材が、前記第1の子基板の挿入経路外に退避するよう回転可能に前記ハウジングに取り付けられていることを特徴とするカードエッジコネクタ組立体。

【請求項2】 前記ハウジングが、前記第2の子基板用の前記ラッチ部材が退避した位置に該ラッチ部材を退避した状態に維持する支持部を有することを特徴とする請求項1記載のカードエッジコネクタ組立体。

【請求項3】 長手方向に延びる2列の平行な子基板受容凹部を有し親基板に取り付けられる絶縁性のハウジングと、該ハウジングの長手方向の両端部近傍に前記子基板受容凹部に対応して配置される2対のラッチ部材とを備え、第1の子基板を第1の前記子基板受容凹部に前記ハウジングに対し斜めに挿入すると共に回転させて対応する前記ラッチ部材と係合させ、第2の子基板を同様に第2の前記子基板受容凹部に装着させるよう構成されたカードエッジコネクタ組立体において、前記第2の子基板用の1対の前記ラッチ部材が連結部材により相互に連結されて副組立体とされ、該副組立体が前記第1の子基板の挿入経路外に退避可能に前記第2の子基板用の前記ラッチ部材により前記ハウジングに取り付けられていることを特徴とするカードエッジコネクタ組立体。

【請求項4】 前記連結部材が、前記第2の子基板用の前記ラッチ部材の過応力を防止する過応力防止手段を有することを特徴とする請求項3記載のカードエッジコネクタ組立体。

【請求項5】 前記過応力防止手段が、前記副組立体の前記ラッチ部材に設けられた突片を受容する開口であることを特徴とする請求項4記載のカードエッジコネクタ組立体。

【請求項6】 前記ハウジングが、前記副組立体が退避した位置に該副組立体を退避した状態に維持する支持部を有することを特徴とする請求項3乃至5のいずれか1項記載のカードエッジコネクタ組立体。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は子基板を装着するカードエッジコネクタ組立体に関し、特に2列となった子基板受容凹部を有するカードエッジコネクタ組立体に関

する。

【0002】

【従来の技術】子基板を2枚受容するタイプのカードエッジコネクタ組立体としては、特許第3022230号公報に開示された2段重ね水平横置きタイプのモジュール基板用電気コネクタが知られている。この電気コネクタは、上段のモジュール基板（子基板）を下段のモジュール基板より後退させて受容するようにカード受容部を位置ずれさせたハウジングを有している。これにより、上下のモジュール基板を夫々係止するラッチ部材を位置ずれさせて、下段用のモジュール基板を挿入、抜去する際、上段のモジュール基板を係止するラッチ部材を避けるようにしている。

【0003】

【発明が解決しようとする課題】前述の従来の技術において、最初に挿入される下段用のモジュール基板を挿入するときは、上段用のラッチ部材を位置ずれさせてはいるものの、上段用のラッチ部材と下段用のラッチ部材の間の狭い範囲内に挿入しなければならない。モジュール基板の挿入角度を大きくするために、ハウジングの一部にテーパーを形成して子基板と干渉しないようにしているが、下段のモジュール基板が上段用のラッチ部材と干渉するのを回避するよう注意する必要があることには変わりなく、下段のモジュール基板（カード）の挿入及び抜去作業の作業性が悪い。

【0004】本発明は以上の点に鑑みてなされたものであり、2枚の子基板の内、先に装着する子基板の装着および抜去を容易に行えるカードエッジコネクタ組立体を提供することを目的とする。

【0005】

【課題を解決するための手段】本発明のカードエッジコネクタ組立体は、長手方向に延びる2列の平行な子基板受容凹部を有し親基板に取り付けられる絶縁性のハウジングと、このハウジングの長手方向の両端部近傍に子基板受容凹部に対応して配置される2対のラッチ部材とを備え、第1の子基板を第1の子基板受容凹部にハウジングに対し斜めに挿入すると共に回転させて対応するラッチ部材と係合させ、第2の子基板を同様に第2の子基板受容凹部に装着させるよう構成されたカードエッジコネクタ組立体において、第2の子基板用のラッチ部材が、第1の子基板の挿入経路外に退避するよう回転可能にハウジングに取り付けられていることを特徴とするものである。

【0006】ここで、「挿入経路外」とは、子基板をハウジングに斜めに挿入し、回転させてラッチ部材と係合させるまでの一連の動作に亘って、子基板が移動する際に占有する空間を除いた部分をいう。

【0007】「第1の子基板」「第2の子基板」とは、組立体のハウジングに挿入する順番が夫々、1番目、2番目となる子基板をいう。

【0008】ハウジングは、第2の子基板用のラッチ部材が退避した位置にこのラッチ部材を退避した状態に維持する支持部を有することができる。

【0009】また、本発明のカードエッジコネクタ組立体は、長手方向に延びる2列の平行な子基板受容凹部を有し親基板に取り付けられる絶縁性のハウジングと、このハウジングの長手方向の両端部近傍に子基板受容凹部に対応して配置される2対のラッチ部材とを備え、第1の子基板を第1の子基板受容凹部にハウジングに対し斜めに挿入すると共に回動させて対応するラッチ部材と係合させ、第2の子基板を同様にして第2の子基板受容凹部に装着させるよう構成されたカードエッジコネクタ組立体において、第2の子基板用の1対のラッチ部材が連結部材により相互に連結されて副組立体とされ、この副組立体が第1の子基板の挿入経路外に退避可能に第2の子基板用のラッチ部材によりハウジングに取り付けられていることを特徴とするものである。

【0010】連結部材は、第2の子基板用のラッチ部材の過応力を防止する過応力防止手段を有することができる。更に、過応力防止手段は、副組立体のラッチ部材に

設けられた突片を受容する開口とすることができる。

【0011】ハウジングは、副組立体が退避した位置に副組立体を退避した状態に維持する支持部を有することができる。

【0012】

【発明の効果】本発明のカードエッジコネクタ組立体は、第2の子基板用のラッチ部材が、第1の子基板の挿入経路外に退避するよう回動可能にハウジングに取り付けられているので、最初の子基板を挿入回動させて組立体に装着するとき或いは抜去するときに、第2の子基板用のラッチ部材が邪魔になることがなく、子基板の挿入及び抜去時の角度も大きくとれるため、単一のカードエッジコネクタに対する場合と同様に極めて容易に装着及び抜去作業することができる。

【0013】また、ハウジングが、第2の子基板用のラッチ部材が退避した位置にラッチ部材を退避した状態に維持する支持部を有する場合には、第2の子基板用のラッチ部材を手で押さえる必要がなく、第1の子基板の装着、抜去を一層容易に行うことができる。

【0014】また、本発明のカードエッジコネクタ組立体は、第2の子基板用の1対のラッチ部材が連結部材により相互に連結されて副組立体とされ、この副組立体が第1の子基板の挿入経路外に退避可能に第2の子基板用のラッチ部材によりハウジングに取り付けられているので、1対のラッチ部材を個別に回動させる必要がなく、回動操作が更に容易になる。

【0015】連結部材が、第2の子基板用のラッチ部材の過応力を防止する過応力防止手段を有する場合には、ラッチ部材が過度に変形して機能を損なうことが防止できる。更に、過応力防止手段を、副組立体のラッチ部材

に設けられた突片を受容する開口とした場合は、過応力防止手段の形成が容易である。

【0016】ハウジングが、副組立体が退避した位置に副組立体を退避した状態に維持する支持部を有する場合には、副組立体を退避した状態に手で押さえて保持する必要がなく、第1の子基板の装着、抜去を一層容易に行うことができる。

【0017】

【発明の実施の形態】以下、本発明のカードエッジコネクタ組立体（以下、単に組立体という）の好ましい実施の形態について図面を参照して詳細に説明する。図1は、2段重ね水平横置きタイプとして構成した場合の本発明の組立体を示し、図1(A)は組立体の平面図、図1(B)は正面図、図1(C)は側面図を夫々示す。以下、図1を参照して説明する。組立体1は、上段の子基板受容凹部（第2の子基板受容凹部）2及び下段の子基板受容凹部（第1の子基板受容凹部）4を有し親基板20（図1(B)）に取り付けられる絶縁性のハウジング6を有する。以下、これらの子基板受容凹部2、4を単に受容凹部2、4という。

【0018】2列の平行な受容凹部2、4（図1(B)）はハウジング6の長手方向に沿って延び、複数のコンタクト12（14、15（図2））が受容凹部2、4に臨んでハウジング6の後部即ち図1(A)において上側の部分に取付けられている。これらの受容凹部2、4には、図1(A)に示すように子基板（カード）96、98が組立体1の前部から挿入される。（下段の子基板96を第1の子基板、上段の子基板98を第2の子基板という。）図1(B)には親基板20を共に示す。

【0019】ハウジング6の両端部には、受容凹部2、4に対応して2対のラッチ部材8、8、10、10が夫々取り付けられており、挿入された子基板98、96をこれらのラッチ部材8、10で夫々係止するようになっている。各ラッチ部材8、10の対は各対で左右対称となっている。なお、上段のラッチ部材8、8が、図1(C)に示すようにハウジング6と一体に突設した支軸22に回動可能に取り付けられていることが本発明では重要である。尚、この支軸22はハウジング6と別体の部材であっても良い。

【0020】ハウジング6にはラッチ部材8、8、10、10に対応してハウジング6の両端に延びる平面形状が略矩形のプレート（連結部材）16、18が取り付けられている。プレート16、18は、各々1枚の金属板から打ち抜き形成される。図1(A)に示すように上段のプレート16は、平坦な主面24を有し、その後部にハウジング6の長手方向に延びる段部21を経て、主面24と同じ方向に延びる後面26が形成されている。後面の両端部にはハウジング6の後面に回り込む断面L字状の取付部28が延出している。

【0021】プレート16の前端30の両側近傍にはプレート16の長手方向に延びる切欠き32、32が形成されている。この各切欠き32から前端30に向かって延びる段部34を経て、上段用のラッチ部材8の外側に係合する略矩形の保持板36が形成されている。この保持板36は、上段のラッチ部材8の外形形状に合わせて前端30側が内側に収束している。この保持板36は子基板(第2の子基板)98が挿入されてラッチ部材8と係合した後、ラッチ部材8が外側に開いて子基板との係合が外れないようにするためのものである。なお、主面24が段部21、34によって相対的に上方に位置するのは、子基板98に搭載されたIC(図示せず)のための空間を確保するためである。プレート18については後述する。

【0022】次に図2を参照して組立体1の断面形状について説明する。図2(A)は図1(A)の2A-2A線に沿う断面図、図2(B)は図1(A)の2B-2B線に沿う断面図である。ハウジング6は、図2(A)に示すように、ハウジング6の後部からコンタクト12を取り付ける上段および下段のコンタクト挿通孔(以下、単に挿通孔という)38、40と、図2(B)に示すように前方からコンタクト14、15を取り付ける上段及び下段の挿通孔42、44をハウジング6の長手方向に位置ずれした位置に有する。各挿通孔38、40は、受容凹部2、4に連通し、挿通孔42、44は受容凹部2、4に隣接している。また、挿通孔38、40に隣接して受容凹部2、4に連通する接触片挿通溝39、41が形成されている。

【0023】コンタクト12は、ハウジング6に形成されたコンタクト受容溝23に配置される上下に延びる細長い本体12aと、この本体12aから挿通孔38、40に圧入される取付タブ12b、12bと、これら取付タブ12b、12bの部分から接触片挿通溝39、41を経て受容凹部2、4内に夫々延びる湾曲した接触片12c、12cと、親基板20の図示しない導電パッドにはんだ付けされるタイン12dを有する。接触片12c、12cの先端部は、受容凹部2、4内に挿入される子基板の導電パッド(図示せず)と電気的接続をする接点12f、12fを有する。

【0024】受容凹部2、4を画成する上側の壁面2a、4aが急角度で上方に傾斜しており、子基板はこの角度で受容凹部2、4に挿入可能であることに注目すべきである。なお、この図2(A)には、前述の上段のプレート16の、段部21および取付部28が明瞭に示されている。下段のラッチ部材10は、バンプ(刺)を側縁に有する圧入片(図示せず)を有し、この圧入片をハウジング6の図示しない溝に挿入することによりハウジング6に取り付けられる。従って、ラッチ部材10はハウジング6に対して上下に回転しないよう固定される。

【0025】次にコンタクト14、15について説明す

る。コンタクト14、15は本体14a、15aと、その本体14a、15aから水平に延び、挿通孔42、44内に夫々圧入される取付タブ14b、15bと、本体14a、15aから湾曲しながら受容凹部2、4内に延出する接触片14c、15cとを有する。接触片14c、15cの先端は、子基板96、98の図示しない電極と接触する接点14f、15fとなる。ハウジング6の後部にはコンタクト14、15と位置合わせして縦長の溝25が形成され、この溝25内に金属板を打ち抜き、形成したコ字状の連結片17が配置される。連結片17の両端には接触脚17a、17aが形成され、これらの接触脚17a、17aの間には取付タブ17bが形成されている。取付タブ17bは対応するハウジング6の溝46に圧入されて固定される。このとき接触脚17a、17aがコンタクト14、15の取付タブ14b、15bと接触し、コンタクト14、15が電気的に接続される。

【0026】次に、図3を参照して下段のプレート18について説明する。図3(A)はプレート18の平面図、図3(B)は正面図、図3(C)は側面図を夫々示す。プレート18は、図3(A)に最もよく示すようにプレート16と同様に略矩形形状をしている。プレート18の後部両端にはプレート18の主面48に対し上側に折り曲げられた矩形的取付片50、50が形成されている。各取付片50には、主面48と平行に配置された2つの取付孔52、52が穿設されている。この取付孔52、52には上側即ち上段のラッチ部材8が取り付けられるが、取付の詳細については後述する。

【0027】プレート18の両端縁54、54の前部には下側に折り曲げられた矩形的保持板56、56が形成されている。この保持板56もラッチ部材8を覆うプレート8の保持板36と同様に内側に収束するように形成されている。保持板56の下端58は外方に僅かに拡開している。各保持板56の後端近傍の主面48には略矩形的開口(過応力防止手段)60、60が形成されている。各開口60の外側縁60aは、後方に延長されて開口60の後部にスロット60bが形成されている。この開口60は上側のラッチ部材8と協働するが詳細については後述する。

【0028】次に図4を参照して上段のラッチ部材8について説明する。図4(A)はラッチ部材8の側面図、図4(B)は平面図、図4(C)は他方の側の側面図、図4(D)は正面図を夫々示す。ラッチ部材8は1枚の金属板を打ち抜き、折り曲げて形成したものであり、細長い平板部即ちアーム62と、この平板部62の前端側即ち図4(A)において左側に子基板保持部64が形成されている。平板部62の後端部にはハウジング6の支軸22(図1(C))に枢着される孔65が穿設されている。子基板保持部64は平板部62の先端部の上縁に折り曲げ形成された子基板保持片66と、平板部62の

先端を内側に折り曲げて突出させた鉤形のフック部68を有する。

【0029】子基板保持片66は、内側即ち保持する子基板（第2の子基板）98側に傾斜したテーパ66aと、子基板98を押さえる停止面66bを有する。このテーパ66aは子基板98が挿入されたとき、子基板98を案内すると共に平板部62を外方に撓ませて子基板98を受容可能とする。受容された子基板98は停止面66bに達すると平板部62が弾発的に復帰して子基板98が停止面66bにより上方へ戻らないよう押さえられる。またフック部68は、子基板98の円弧状の切欠き98a（図7（A））と係合して、子基板98が前方即ち図4（B）の左方向へ抜け出るのを阻止する。

【0030】図4（B）、（C）に最もよく示すように、平板部62の上縁62aの孔65寄りには、上方に延びて平板部62に平行に折り曲げられた固定片70が形成されている。この固定片70の折り曲げられた先端は、更に平板部62と直角に折り曲げられて子基板保持部64の方に延びる弾性接触片72として形成されている。この弾性接触片72は先端部が上方に折り曲げられており、装着された子基板98の接地電極（図示せず）とこの先端部が接触して子基板98を接地接続する。固定片70と平板部62の間には前述のプレート18の取付片50を受容する間隙Gが形成されている（図4（B））。また、固定片70にはプレート18の取付孔52に対応する位置に平板部62側に向けて突起74が形成されている。

【0031】平板部62の下縁62bには、弾性接触片72の先端部に対応する位置に過応力防止片76が形成されており、これにより弾性接触片72の過度の変形を阻止するようになっている。また、平板部62の下縁62bの子基板保持部64の反対側には平板部62と直角に延出した延長部77と、この延長部77から更に下方に延びるL字状部80を有する規制片78が形成されている。L字状部80は板状部62と平行に後方に延びる突片80aを有する。

【0032】次に図5を参照して、この上段のラッチ部材8を下段のプレート18に取り付けた副組立体について説明する。図5（A）は副組立体19の平面図、図5（B）は正面図、図5（C）は側面図を夫々示す。各ラッチ部材8は、弾性接触片72が内側になるように固定片70をプレート18の取付片50に取り付ける。この時、ラッチ部材8の固定片70の2つの突起74（図4（C））がプレート18の2つの取付孔52（図3（C））に係合して固定されると共に、ラッチ部材8のL字状部80がプレート18の開口60に侵入する。侵入する際、L字状部80の突片80aが、開口60のスロット60bを通して突片80aがプレート18の主面48の下側に配置される。

【0033】子基板保持部64に外力が加わっていない

ときは、突片80aはスロット60bからずれた開口60の部分に位置する。即ち図5（A）に示す位置になる。従って、ラッチ部材8に上方への力A（図5（B））が加わった場合でも、この突片80aがプレート18の主面48に下方から当接して、それ以上の移動を規制するので、ラッチ部材8がプレート18から外れることが防止される。また、ラッチ部材8はL字状部80が開口60内で矢印Bで示す方向（図5（A））に移動しうる範囲内で平板部62が子基板98を受容する際移動することが可能となる。このようにしてラッチ部材8とプレート18が一体に組み立てられプレート副組立体19として構成される。このように開口60と突片80aとが協働してラッチ部材8の過応力を防止している。

【0034】次に、図6および図7を参照して子基板96、98の取付方法について説明する。図6（A）は副組立体19をハウジング6の支軸22の周りに回転して開いた状態を示す組立体1の側面図、図6（B）は図6（A）の6-6線に沿って切断した平面図、図6（C）は正面図を夫々示す。なお、図6では組立体1から上段のプレート16を取り外した状態が示されている。図7は下段側の子基板（第1の子基板）96を取付後、副組立体19を閉じた状態を示し、図7（A）は平面図、図7（B）は正面図、図7（C）は側面図を上側のプレート16と共に示す。

【0035】図6に示すように、副組立体19が、横長のハウジング6の両端に突設された支軸22にラッチ部材8を介して取り付けられているのが明瞭に示されている。ハウジング6の後部両端には凸部（支持部）82が外方に突設されている。この凸部82は副組立体19が、子基板96を装着するために開いたときラッチ部材8の平板部62の後部近傍の上縁62cが当接して副組立体19を開いた状態即ち退避した状態に維持する。この状態で、下段側の子基板96は図6（A）に示すように下段の受容凹部4に斜めに挿入され矢印Cで示すように下側に押し下げられ（回転され）てラッチ部材10に取り付けられる。このように子基板96は、ラッチ部材8が子基板96の挿入前に、予め回転されて子基板86の挿入経路外に退避しているのでラッチ部材8が子基板96の挿入の妨げになることはない。

【0036】子基板96がラッチ部材10に取り付けられた状態を図6（B）に仮想線で示す。但し図6（C）には子基板96を示していない。子基板96を取付けた後、副組立体19は図6（A）に矢印Dで示すように下段の基板96上に回転され、図7に示す状態になる。この時プレート18の保持板56は、ラッチ部材10の子基板保持部84の外側に位置し、ラッチ部材10の子基板保持部84が外側に撓んで子基板96が外れるのを防止している。保持板56は下端58が僅かに拡張しているので、子基板保持部84に係合するときに互いに位置

合わせするガイドとなる。

【0037】なお、下段のラッチ部材10は上段のラッチ部材8と同様な形状をしている。ラッチ部材10の平板部10aは、後部の上縁で折り返されてラッチ部材8と同様に子基板96と接地接続される弾性接触片10bが形成され、また平板部10aの下縁からは、この弾性接触片10bの過応力を防止するラッチ部材8と同様な過応力防止片10cが内側に突設されている。

【0038】図7(A)に示すように、下側のラッチ部材10は、副組立体19により覆われて上方からは見えない。図7(B)ではラッチ部材10が保持板56により外方への移動が規制されているのが示されている。上段の受容凹部2には、上側の子基板98が図7(C)に示すように斜めに挿入され、矢印Eで示す方向に回転されてラッチ部材8に取り付けられる。図7(A)にこの取り付けられた状態の子基板98を示す。子基板98が取り付けられた後、上側のプレート16がハウジング6に取り付けられ、図1(B)に最もよく示すようにプレート16の保持板36が子基板保持部64の外側に配置され、子基板保持部64が外方に撓むのが規制される。これにより組立体1が完成する。

【0039】以上本発明について好ましい実施の形態を参照して詳細に説明したが、実施形態はあくまでも例示的なものであり、これらに限定されるものではない。例えば、組立体1は親基板20上に水平に載置される形式のものであるが、垂直に取り付ける形式のものであっても良い。この場合、高さ方向の寸法は大きくなるものの、親基板上の実装面積は小さくなるという利点がある。

【図面の簡単な説明】

【図1】本発明の組立体を示し、図1(A)は組立体の平面図、図1(B)は正面図、図1(C)は側面図を夫々示す。

【図2】図1の組立体の断面形状を示し、図2(A)は図1(A)の2A-2A線に沿う断面図、2(B)は図

1(A)の2B-2B線に沿う断面図をそれぞれ示す。

【図3】下段のプレートを示し、図3(A)はプレートの平面図、図3(B)は正面図、図3(C)は側面図を夫々示す。

【図4】上段のラッチ部材を示し、図4(A)はラッチ部材の側面図、図4(B)は平面図、図4(C)は他方の側の側面図、図4(D)は正面図を夫々示す。

【図5】上段のラッチ部材をプレートに取り付けた副組立体を示し、図5(A)は副組立体の平面図、図5(B)は正面図、図5(C)は側面図を夫々示す。

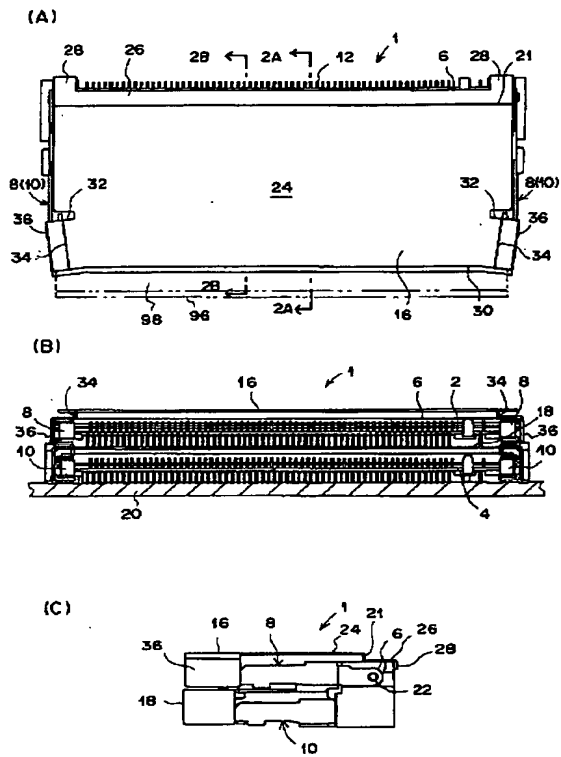
【図6】下段の子基板の取付方法を示し図6(A)は副組立体をハウジングの支軸の周りに回転して開いた状態を示す組立体の側面図、図6(B)は図6(A)の6-6線に沿って切断した平面図、図6(C)は正面図を夫々示す。

【図7】下段側の子基板を取付後、副組立体を閉じた状態を示し、図7(A)は平面図、図7(B)は正面図、図7(C)は側面図を上側のプレートと共に示す。

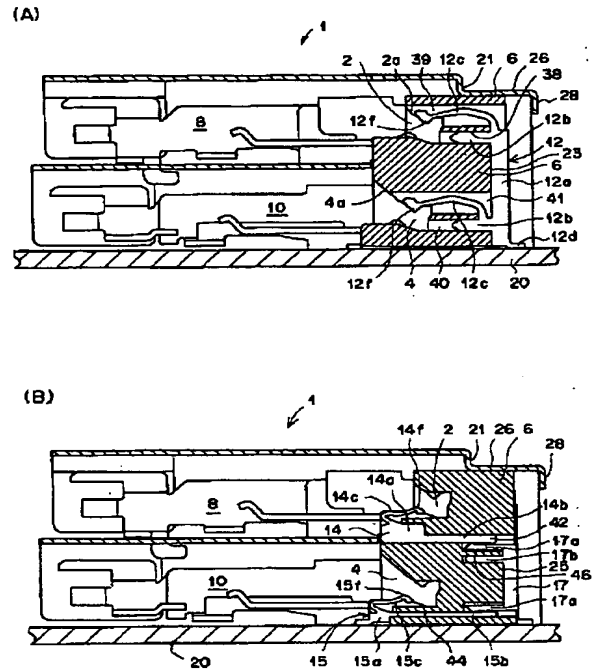
【符号の説明】

- | | |
|------|---------------|
| 1 | カードエッジコネクタ組立体 |
| 2 | 第1の子基板受容凹部 |
| 4 | 第2の子基板受容凹部 |
| 6 | ハウジング |
| 8、10 | ラッチ部材 |
| 16 | プレート(連結部材) |
| 19 | 副組立体 |
| 20 | 親基板 |
| 22 | 支軸 |
| 60 | 開口(過応力防止手段) |
| 65 | 孔 |
| 80a | 突片 |
| 82 | 凸部(支持部) |
| 96 | 第1の子基板 |
| 98 | 第2の子基板 |

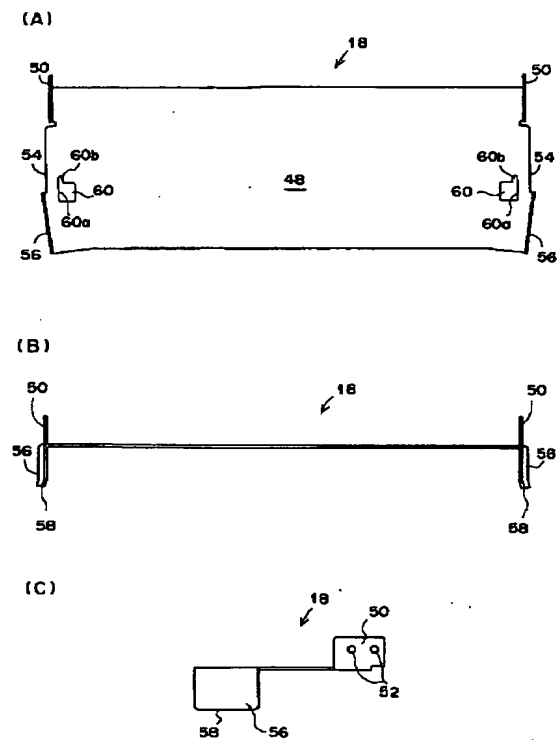
【図1】



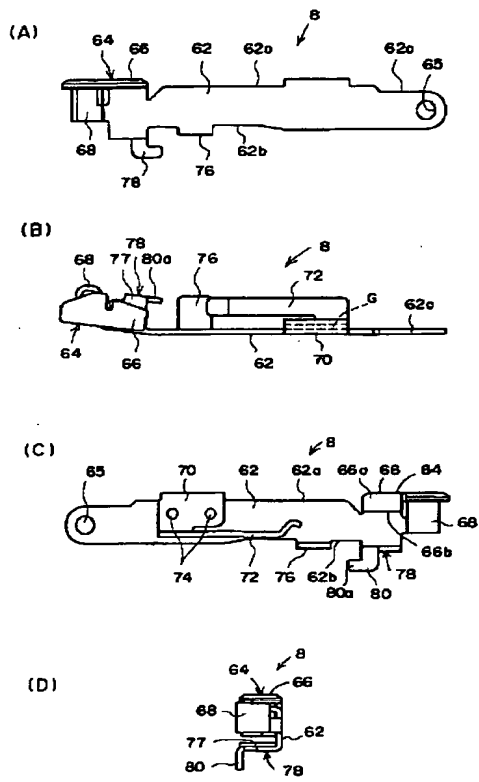
【図2】



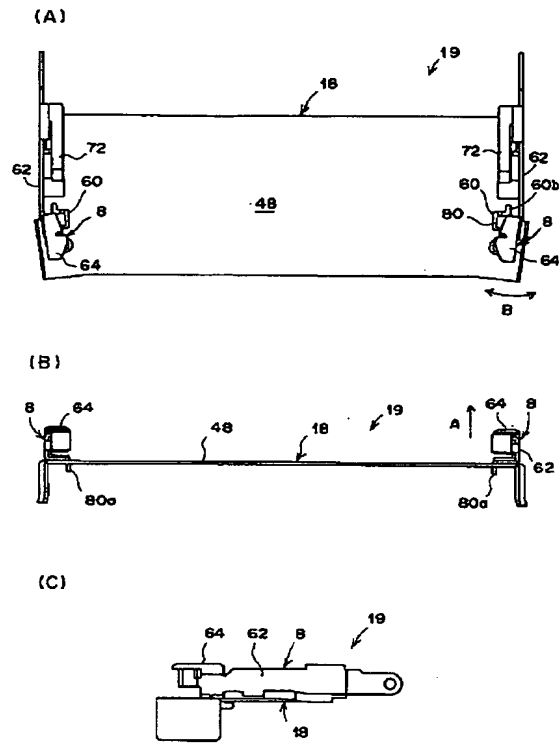
【図3】



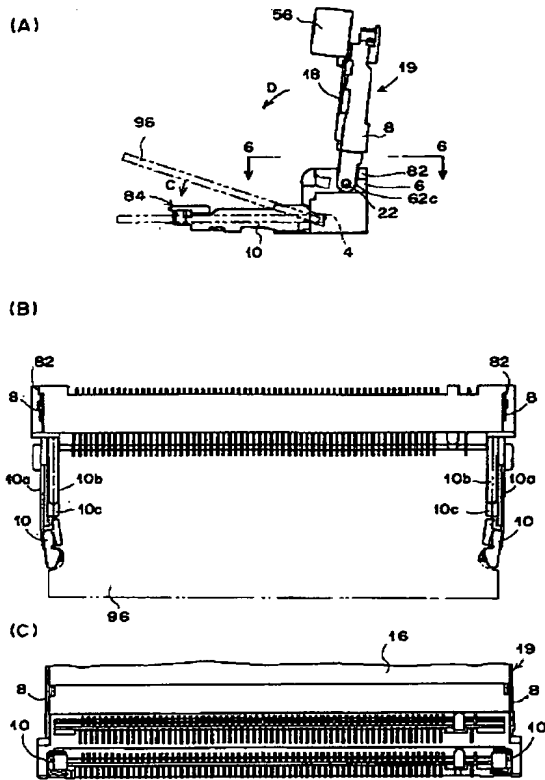
【図4】



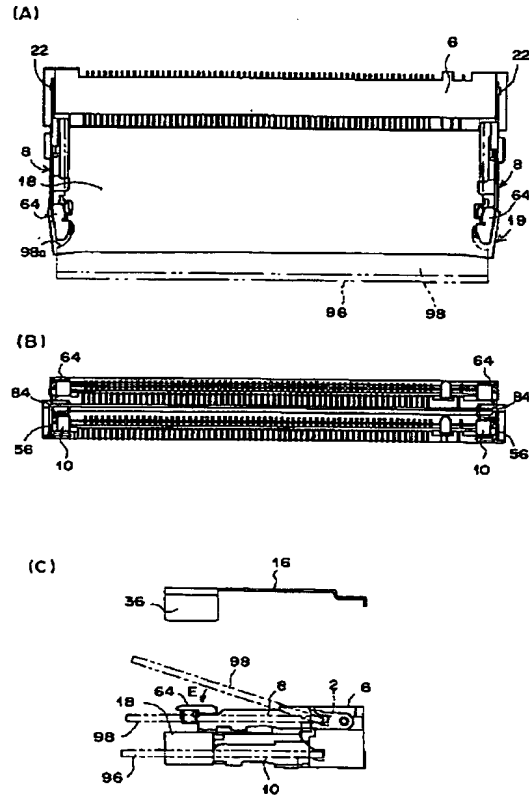
【図5】



【図6】



【図7】



フロントページの続き

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